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Developmental Delay

Definition

A developmental delay is any significant lag in a child's physical, cognitive, behavioral, emotional, or social development, in comparison with norms.

Description

Developmental delay refers to when a child's development lags behind established normal ranges for his or her age. Sometimes the term is used for [mental retardation](#), which is not a delay in development but rather a permanent limitation. If most children crawl by eight months of age and walk by the middle of the second year, then a child five or six months behind schedule in reaching these milestones may be classified as developmentally delayed regarding mobility.

At least 8 percent of all children from birth to six years have developmental problems and delays in one or more areas of development. Some have global delays, which means they lag in all developmental areas.

Doctors try to locate the source of the delay and then design a treatment plan. When the cause of a child's delay is identified, the pediatrician and [family](#) know better what to expect, and the child can begin to receive appropriate treatment and support. If the problem is a genetic disorder, then parents may seek genetic counseling regarding their decision on having additional children.

The doctor's [assessment](#) has various components. The following are some of them:

- **Developmental assessment:** The physician's review of a child's current competencies (including knowledge, skills, and personality), and consideration of the best ways to help the child develop further.
- **Family assessment:** Interpretation of a child's development from family members, as well as their ideas about priorities and concerns about the child's future development.
- **Multidisciplinary assessment:** The assessment by a group of professionals who work with the child and family, directly or indirectly. The assessment interprets different phases of a child's development and types of behavior and skills.

- **Play-based assessment:** This assessment involves observation of the child playing alone, with peers, or with parents or other familiar caregivers, in free [play](#) or in special games. Play provides a diagnostic framework within which children show abilities, feelings, learning style, and social skills in groups.

Infancy

Infants who have medical problems at birth have an increased chance of developmental difficulties. High-risk infants should be in a follow-up program to track their progress because of an increased likelihood of developmental problems that may appear gradually in the first years of life.

Most children begin to speak their first words before they are 18 months old, and by age three the vast majority of children speak short sentences. Therefore, any child who is not speaking words or sentences by the third birthday may be developmentally delayed.

Toddlerhood

Between the ages of 12 and 30 months, a child begins to strike out independently from a secure base of trust set up with the primary caregiver during the first year. As toddlers learn to walk, there is access to new territory. Boundless energy and insatiable curiosity drives the child to explore the environment and master new skills. Increased motor skills, immaturity, and lack of experience also place the toddler at risk for accidental injury. Children with developmental delays may tend to be more reserved and less adventuresome. They may tend not to explore their environment or take risks in it.

The healthy toddler years are characterized by the struggle for autonomy as the child develops a sense of personhood separate from the parent. Toddlers' egocentric and demanding behavior, often marked by temper [tantrums](#) and negativism, has given this period a negative reputation. However, toddlers who do not evince this challenging behavior may be delayed. Dramatic growth of language and cognitive skills during the second year enables the healthy toddler to think and solve problems for the first time. For the child who is not progressing in language skills, developmental delays are readily identifiable.

Preschool

The [preschool](#) period, from age three to five years, is a time of relative tranquility after the tumultuous toddler period. The healthy preschooler becomes increasingly independent, mastering many motor skills and developing greater social and emotional maturity. The preschooler is imaginative, creative, and curious. The developmentally delayed preschooler may act more egocentrically and show more signs of demanding behavior.

School age

Children from six to 12 years of age experience slow, steady physical growth and rapid cognitive and social development. The school-age child develops a sense of industry and learns the basic skills needed to be comfortable in society. The child develops appreciation of rules and a conscience that influences compliance and affects disobedience. Cognitively, the child grows from egocentrism in early childhood to more mature thinking. This maturity supports the ability to solve problems and make reasonably independent decisions. Competence and [self-esteem](#) increase with each academic, social, and athletic achievement. The relative stability and security of the school-age period prepare the child to manage the challenges of [adolescence](#). However, the developmentally delayed child might not evince this growing competence.

Common problems

Although there are several areas of developmental areas, this article is restricted to global delay, delay in speech and language, motor and fine motor delays, and personal and social developmental delays.

Global developmental delay

Children with a diagnosis of mental retardation often have mixed or global development delays. However, low IQ may or may not be causally related to the delays. Two to three children out of every 100 have a mental handicap, and those with IQs of 55 or lower may have a physiological reason for their delay. Some children experience global developmental delay due to chromosomal abnormalities such as [Down syndrome](#) or [fragile X syndrome](#). Global delays also are common in children with [fetal alcohol syndrome](#).

Speech and language delay

Speech and language developmental delays are often prevalent in children with developmental disabilities. Eleven percent of toddlers have a speech and language problem. Expressive [language delay](#) is the most common developmental presentation. The social and educational development of children with delayed speech and language may be significantly disruptive (even in mild delays), so early identification and intervention is essential. Clinical diagnosis of delayed speech and language in children also considers hearing loss and [autism](#), among other possible causes.

All children with delayed speech and language should have an audiometric assessment. Congenital sensorineural hearing loss (most common birth deficiency, affecting roughly two to four per 1,000 children) may cause delayed speech and language. Hearing problems occur often in newborns and in a higher number of babies who are in a neonatal intensive care unit. Universal newborn hearing screening programs should help in determining hearing acuity.

Hearing loss

Approximately half of all preschool children have varying hearing loss from [otitis media](#). Language skills are affected by hearing loss, and more than one third of children with unilateral deafness fail one or more school grades. In general, children with the greatest hearing loss have the greatest language deficits. The earlier the hearing loss is identified, the better the outcome.

Autism

Children with delayed speech and language should be evaluated for cognitive disabilities. There is a close association among social and affective abilities and cognitive, sensory, and [language development](#). Children who are unable to communicate effectively may have problems interacting verbally with their peers. Because social and pragmatic deficits are core characteristics of autism, it is important to look for dissociation among language, social adaptive skills, and motor behavior. Autism is a common disorder, occurring once in 500 children. It is one of the most complex neurodevelopment disorders. Children with autism have significant communication impairment.

In order to be eligible for programs and services for autism, a student must have delayed or abnormal functioning in at least one of three areas with onset before the age of three. These children have difficulty communicating and lack the ability to connect with peers. There may be a delay or total lack of language or the use of repetitive and idiosyncratic language. Other behaviors can include preoccupation with parts of

objects, hand or finger flapping, and rocking.

Pervasive developmental disorder is two to three times more common than autism but less severe. When behaviors resembling autistic disorders are present with abnormalities of speech and language development, other syndromes and disorders are considered, for example, Asperger disorder, childhood disintegrative disorder, and Rett syndrome.

Musculature dysfunction

Oral motor dysfunction of the speech-producing musculature (in which children have dysarthria, or mechanical difficulties in speaking) is present in children with [cerebral palsy](#) and other conditions. The dysfunction leads to uncoordinated oral musculature.

Verbal difficulties

Verbal learning disability is often associated with speech and language problems in preschool children. Children with a specific learning disability, like children with severe mental retardation or autism, may present with dissociation in developmental skills. For example, language may be more delayed than motor skills. Also, lack of academic success at school can reflect dissociation between academic achievement and general intellectual abilities. Delays in language and cognitive areas may suggest a neurodevelopmental diagnosis that presents as a nonverbal learning disability. In such cases, a child may have impaired visual-spatial perceptual abilities.

It is helpful to consider a child's expressive and receptive language skills. Children with an ability to understand are more likely to improve than children with expressive and receptive delays. Children whose primary difficulty involves receptive language are more likely to have developmental cognitive disability or autism spectrum disorder. Neurological problems may also be present when a child's head circumference is increasing either too fast or too slowly. Although physical and cognitive delays may occur together, one is not necessarily a sign of the other.

Neurological or medical conditions

In developmental language disorder, impaired language cannot be attributed to a neurological or general medical condition. There is a slow rate of language development, in which speech begins late and advances slowly. Children with developmental language disorder have an inconsistency between their cognitive functioning (nonverbal or performance measures) and their language skills. Different patterns of language impairment in developmental [language disorders](#) have distinct profiles of linguistic strengths and weaknesses. Developmental dysphasia may be the problem with some of these children. There are many reasons for a developmental language disorder, which occurs in about 10 percent of the population.

An unusual cause of acquired language disorder is an epileptic syndrome called Landau-Kleffner syndrome. Children with Landau-Kleffner develop typical language skills, which then deteriorate. The characteristics of this condition may be confused with autism.

Motor delay

Physician referrals of motor delay are most common during the first six to 18 months of a child's life. By evaluating a child's developmental profile, a doctor may develop a differential diagnosis.

Early motor delays are often a sign of neurological dysfunction. When a child has primarily motor delays, conditions such as cerebral palsy, ataxia, [spina bifida](#), [spinal muscular atrophy](#) (withering) and myopathy may be present. If there is no motor delay, a child does not have cerebral palsy. When a motor delay exists with delays in other developmental areas, the child should be examined for visual impairment or mental handicap.

Older children with poor motor skills may have a developmental coordination disorder in which their motor skills are substantially below their cognitive abilities. Their clumsiness may link with a learning disability or attention-deficit hyperactivity disorder. Children with Asperger disorder are often clumsy; their neuropsychological profiles display significantly stronger verbal skills than nonverbal abilities.

HYPOTONIA [Hypotonia](#) is the most common symptom of motor dysfunction in newborns and infants. The child's developmental assessment should include the quality of the pregnancy, including the onset and vitality of fetal movements and problems during labor and delivery. The child's presentation in the neonatal period should be described, with special attention to the family history to document the potential for genetic disorder.

The key to diagnosing a hypotonic infant is a neurodevelopment examination. The challenge in correctly diagnosing a "floppy" child lies in distinguishing between central and neuromuscular hypotonia. A hypotonic infant who is not weak has low tone because of a central nervous disorder. Weakness strongly implies neuromuscular involvement. Normal or increased deep tendon reflexes suggest central hypotonia.

FINE-MOTOR ADAPTIVE DELAY If there is a delay in fine-motor adaptive development combined with delays in other developmental domains, the doctor will consider whether the child is visually impaired or mentally handicapped. It is important to assess the eyes and visual acuity of a child presenting with delayed fine-motor adaptive development.

If the delay occurs mainly in one developmental area, the child may have hemiplegia, a brachial plexus injury, such as Erb's or Klumpke's palsy, or a broken clavicle. All symmetries of movement in the first two or three years should be watched.

In older preschool or elementary school children with fine-motor delays, developmental coordination disorder or a disorder of written expression may be causal. Developmental coordination disorder presents in about 6 percent of all children. It is often associated with attention deficit hyperactivity disorder or a learning disability.

PERSONAL AND SOCIAL DELAY When a child presents with personal and social delays, the doctor will consider whether the child has developmental cognitive disability, has autism, or is living in an environment of abuse, neglect, or deprivation.

Parental concerns

Many doctors routinely include developmental screening in physical examinations. Parents concerned about any of their child's development should seek the opinion of their pediatrician.

KEY TERMS

Accommodation—The ability of the lens to change its focus from distant to near objects and vice versa. It is achieved through the action of the ciliary muscles that change the shape of the lens.

Assessment—In the context of psychological assessment (a structured interview), assessment is information-gathering to diagnose a mental disorder.

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Child development specialist—A professional who is trained in infant and toddler development and in the tools used to identify developmental delays and disabilities.

Development—The process whereby undifferentiated embryotic cells replicate and differentiate into limbs, organ systems, and other body components of the fetus.

Developmental milestone—The age at which an infant or toddler normally develops a particular skill. For example, by nine months, a child should be able to grasp and toss a bottle.

Disability—An inability to do something others can do; sometimes referred to as handicap or impairment.

Hypotonia—Having reduced or diminished muscle tone or strength.

Motor skills—Controlled movements of muscle groups. Fine motor skills involve tasks that require dexterity of small muscles, such as buttoning a shirt. Tasks such as walking or throwing a ball involve the use of gross motor skills.

See also [Cognitive development](#); ; [Fine motor skills](#).

Resources

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